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Where Do Students with Disabilities Enroll in Texas Postsecondary Institutions?

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Over the past thirty years, educational researchers have found that an increasing number of students with disabilities (SWD) are enrolling in higher education institutions in the United States (U.S.) (Adams & Proctor, 2010; Newman et al., 2011; Yssel, Pak, & Beilke, 2016). Federal legislation such as Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA, 1990), and the Individuals with Disabilities Act (IDEA, 2004) has given students the opportunity to receive accommodations and supports in these settings. Interestingly, the percentage of undergraduates with a disability in the U.S. has gone from 6% to 11% over the last 20 years (U.S. Department of Education, 2000, 2016). For SWDs who transition from high school to college, one of the greatest challenges is obtaining educational supports that were otherwise addressed by parents and teachers in subsequent schooling years (Adams & Proctor, 2010; Kimball et al., 2016; Paul, 2000; Skinner & Lindstrom, 2003). Although ADA and IDEA states that postsecondary students with disabilities have the right to accommodations to support their learning needs, the onus is on students to gain access to these services (Getzel & Thoma, 2008; Kimball et al., 2016; Paul, 2000; Skinner & Lindstrom, 2003; Zhang et al., 2010).

As the enrollment of postsecondary SWDs continues to grow (Newman et al., 2011), little is known about the postsecondary institutions that are best suited to enroll SWDs either in Texas or nationally (Yssel et al., 2016). ADA does not require postsecondary institutions to report the specifics on the enrollment of SWDs (ADA, 1990). Instead, postsecondary institutions are only required to report the percentages of SWDs who have self-identified on campus as a person with a disability seeking reasonable accommodations (U.S. Department of Education, 2017). In addition, postsecondary institutions only report to the 3% threshold, meaning that postsecondary institutions whose SWD population is less than 3% do not report specific percentages: These institutions simply report enrolling a less than 3% SWD population. If a postsecondary institution does enroll a greater than 3% SWD population, then the postsecondary institution reports the specific percentage but does not report any other individual characteristics about the student, such as race, gender, age, major of study, or any other personally identifying traits (U.S. Department of Education, 2017). This lack of reporting detail has led some disability researchers to criticize the fact that the U.S. Department of Education and the ADA has not required postsecondary institutions to report more SWD information, informing institutional policies about how to best support SWDs on college campuses (Kimball et al., 2016; Paul, 2000).

Beyond qualitative research, there have been no longitudinal studies conducted. In Texas especially, the rhetoric regarding special education has been viewed as contentious and negative (DeMatthews & Knight, 2019a, 2019b; Hawkins, 2019; Murphy, 2019; Swaby, 2019; Zelinski, 2019). In the 2017 and 2018 school years, the U.S. Department of Education found that the state of Texas legislation illegally reduced funding for special education in K-12 public schools (B. Hawkins, 2019; Swaby,

2019). Moreover, Texas legislation argued that many students with disabilities served by Texas' K-12 public schools did not require the accommodations and educational supports they were receiving, even though these accommodations and supports were federally mandated by ADA (B. Hawkins, 2019; Swaby, 2019). In an analysis of Texas Education Agency (TEA) policies regarding school district performance metrics, DeMatthews and Knight (2019a) learned these TEA policies were effectively coercing school districts to artificially lower the number of students receiving special education services, denying students with documented disabilities their right to learning accommodations. In postsecondary education, Cawthon, Nichols, and Collier (2008) found that many Texas postsecondary institutions did not make their accommodations for deaf students available online, restricting these students' postsecondary success.

Additionally, Texas is one of the largest states in the U.S. with an increasingly diverse university population (Texas Higher Education Coordinating Board, 2019), suggesting that educational research into the experiences of students with disabilities in Texas' education system will be important for the success of these students. As such, the purpose of this study is to provide a greater insight into which characteristics predict the enrollment of SWDs in postsecondary institutions in Texas over a five-year period. Using data from the Integrated Postsecondary Education Data System (IPEDS), the study addresses the following research question: Which institutional characteristics predict the enrollment of students with disabilities in Texas postsecondary institutions?

Literature Review

For years, educational researchers have posited that SWDs may represent the most marginalized student population in U.S. postsecondary education (Adams & Proctor, 2010; Getzel & Thoma, 2008; Mamiseishvili & Koch, 2012; Plotner & Marshall, 2015; Renn & Reason, 2013; Skinner & Lindstrom, 2003; Stanley, 2000; Yssel et al., 2016). In recent years, however, progress has been made. Recent estimates suggest a nearly 12% increase since 2000 of SWDs in the U.S. postsecondary student population (Yssel et al., 2016). In all, 19% of undergraduates and 12% of post baccalaureate students in 2015-2016 reported that they had a disability, the most recent data publicly available (U.S. Department of Education, 2017).

Despite these gains, access gaps have remained. Comparatively, students with disabilities complete a bachelor's degree at less than half the rate that students without a disability do, as only 16.4% of students with disabilities completed at least a bachelor's degree, in comparison to 34.6% of students without a disability (Bureau of Labor Statistics, 2015). Additionally, the U.S. Department of Education (2017) reported that in 2009, only 13.8% of high school students who received special education services expected to pursue postsecondary education at the bachelor's level. However, of high school students who received special education services in 2009, 37.4% had not enrolled in any form of postsecondary education four years later. When SWDs did enroll in postsecondary education, public or private nonprofit two-year institutions accounted for the largest percentage (29.9%). The U.S. Department of Education (2017) report also suggested only 17.6% of public two-year postsecondary students and 8.3% of private non-profit two-year postsecondary students who received special education services in 2009 enrolled in a public or private nonprofit four-year institution four years later. Beyond this descriptive reporting of enrollment of postsecondary students with disabilities, the U.S. Department of Education (2017) did not report on any other data besides student-level characteristics (e.g., race, sex, age, immigrant status, and veteran status) and some student disability types (e.g., cognitive, ambulatory).

Yet, as the number of SWDs enrolled in postsecondary institutions continues to rise, the transition from high school has continued to present new challenges (Getzel & Thoma, 2008; Kimball et al., 2016; Paul, 2000; Plotner & Marshall, 2015; Renn & Reason, 2013). National education policies and initiatives, such as the Americans with Disabilities Act (ADA) and the Individuals with Disabilities Act (IDEA) only require U.S. postsecondary institutions to provide reasonable accommodations for SWDs on college campuses. The reasonableness of the accommodation is determined by individual faculty members at institutions of higher education, in conjunction with disability services or student support services offices (ADA, 1990; IDEA, 2004). To receive a reasonable accommodation, students need to request for a reasonable accommodation to the faculty member directly, in addition to the institution through their disability services office or student support center office (ADA, 1990; IDEA, 2004).

As a result, U.S. postsecondary institutions have provided these accommodations in a variety of ways with considerable differentiation from school to school, with many institutional leaders being very slow to adapt to a rapidly-changing student population (Bursuck et al., 1989; Madaus, 2011; Plotner & Marshall, 2015; Skinner & Lindstrom, 2003; Stanley, 2000). Prior studies have provided insight into the challenges that SWDs face in receiving accommodations in postsecondary institutions (Adams & Proctor, 2010; Getzel & Thoma, 2008; Kimball et al., 2016; Skinner & Lindstrom, 2003). These difficulties have included negative or unsupportive faculty attitudes toward SWDs (Baker, Boland, & Nowik, 2012; Lombardi, Murray, & Dallas, 2013; Zhang et al., 2010), inadequate services provided by smaller institutions (Hurst & Smerdon, 2000), inadequate postsecondary funding to pay for the accommodation (Plotner & Marshall, 2015), and a lack of specialized staff to deliver the accommodation (Quick, Lehmann, & Deniston, 2003; Zhang et al., 2010).

Moreover, because ADA-mandated reasonable accommodations require students to petition or apply for such accommodations, research has found that many postsecondary SWDs who persist through higher education and earn their degrees are those who tirelessly self-advocate for accommodations and often sacrifice other elements of their education (Anctil et al., 2008; Getzel & Thoma, 2008; Madaus, 2011; Paul, 2000). When SWDs successfully apply for and receive accommodations, SWDs have reported experiencing difficulty with faculty members and a necessity to downplay their disability to receive the accommodation (Barnar-Brak, Lectenberger, & Lan, 2010).

Although there are many factors that influence college success, research suggested that inappropriate educational services may contribute to lower graduation rates of SWDs when compared to those without disabilities (Adams & Proctor, 2010; Anctil, Ishikawa, & Scott, 2008; Hurst & Smerdon, 2000; Newman et al., 2011). Additionally, the ADA has not required U.S. postsecondary institutions to report which kinds of disabilities their students have or the specific types of reasonable accommodations they provide to specific students, resulting in a lack of actionable data to influence special education policy to support students with disabilities throughout the P-20 spectrum (Cawthon et al., 2008; Getzel & Thoma, 2008; Haber et al., 2016; Kimball et al., 2016; Madaus, 2011; Paul, 2000).

To date, there are no studies which evaluate institutional characteristics to predict postsecondary enrollment of SWDs, even though it is the institutions who are responsible for adhering to ADA. Instead of longitudinal, quantitative studies to understand where postsecondary SWDs enroll, the U.S. Department of Education (2017) synthesized data from several secondary and postsecondary sources (e.g., the High School Longitudinal Study of 2009, the 2012/14 Beginning Postsecondary Students Longitudinal Study) and provided basic descriptive analyses of enrollment trends at the postsecondary level and disability services at the secondary level. This broad overview did not delve

into specific institutional characteristics that are associated with greater enrollment numbers of students with disabilities.

Moreover, this report does not disclose details about the specific disability of enrolled students, making it difficult for institutions to understand how to best serve students with disabilities. However, institutional spending to support students with disabilities through learning accommodations and campus accessibility measures have been found to help these students persist and earn postsecondary credentials (Cawthon et al., 2008; Kimball et al., 2016; Paul, 2000; Zhang et al., 2010). To inform prior, national-level research, this study seeks to fill a considerable gap in the literature and perform a longitudinal quantitative analysis of postsecondary enrollment of students with disabilities in perhaps the most hostile state for special education in the United States: Texas (Cawthon et al., 2008; DeMatthews & Knight, 2019a, 2019b; D. Hawkins, 2017; Harris, 2018; Murphy, 2019; Swaby, 2019).

Texas is one of the largest states in the U.S., with 35 public universities, 39 private universities, 50 community colleges, and 21 other institutions of higher learning. In Fall 2018, 1,542,524 students enrolled in postsecondary institutions in Texas. There were 658,222 students enrolled in public 4-year institutions, 758,061 students enrolled in public 2-year institutions, and 126,241 students enrolled in an independent university or college in Texas (Texas Higher Education Coordinating Board, 2019). Yet, to date, no studies have reported on the enrollment statistics of students with disabilities in postsecondary institutions in Texas.

In Texas, the rhetoric regarding special education has been viewed as contentious and negative, with state legislation illegally trimming millions of dollars from Texas' special education budget (American Speech-Language-Hearing Association, 2019; DeMatthews & Knight, 2019a, 2019b; B. Hawkins, 2019; Murphy, 2019; Swaby, 2019; Zelinski, 2019). As a result, researchers have posited Texas may be one of the most difficult states in the country for students with disabilities to access higher education (De Matthews & Knight, 2019b; B. Hawkins, 2019; Murphy, 2019; Swaby, 2019). Examining the enrollment of students with disabilities in postsecondary institutions in Texas will provide a more in-depth understanding of how this population could be greater supported, given the size of the postsecondary population and the divisive nature of special education rhetoric in Texas (American Speech-Language-Hearing Association, 2019; DeMatthews & Knight, 2019a, 2019b; Hawkins, 2019; Murphy, 2019; Swaby, 2019; Zelinski, 2019).

As Texas is one of the largest states in the country with an increasingly diverse postsecondary population, the purpose of this study is to provide a greater insight as to what institutional characteristics predict the enrollment of students with disabilities in higher education institutions in Texas over a five-year period.

Methods

The following sections will detail how the research team collected data, how quantitative methods were determined, and how the research team addressed limitations.

Data Collection

To gather longitudinal data, the research team employed the Integrated Postsecondary Education Data System ([IPEDS], National Center for Education Statistics, 2019) to explore where students

with disabilities enrolled in Texas postsecondary institutions (N=394). Extant research has criticized the fact that U.S. postsecondary institutions—including Texas postsecondary institutions—are not compelled to publish disability-related information on their websites or report such data to the federal or local government (Kimball et al., 2016). However, student protections and federal requirements levied by the U.S. Government through ADA has allowed abundant, rich data sources for exploring where students with disabilities enroll in K-12 schools (Newman et al., 2011). Yet, Given this reporting problem, IPEDS only includes percentages of students with disabilities at the 3% threshold, meaning institutions enrolling less than a less than 3% students with disabilities population do not report individual percentages, and institutions who enroll more than a 3% students with disabilities population report their percentage without reporting specific enrollment numbers or the types of disabilities that students have reported and the accommodations they received. Moreover, this data is not reported by race, ethnicity, gender, or any other personally identifying characteristic (NCES, 2019), rendering it difficult to gather postsecondary student-level data: As a result, this study uses the data available, which is institution-level data.

The research team collected IPEDS data from all Texas postsecondary institutions (N=394)—descriptive statistics of this population can be found in Table 1. Institutional characteristics included sector (e.g. public or private), Carnegie classification, geographic location (e.g., rural, urban), four-year and less-than-four-year status, student services expenses, academic support expenses, and instructional expenses, student-faculty ratio, and average institutional grant aid. These variables were included in the data collection process because extant research has suggested that these institutional characteristics may influence the access, persistence, and graduation of students with disabilities at U.S. postsecondary institutions (Bursuck et al., 1989; Fichten et al., 2003; Mamiseishvili & Koch, 2012; McGuire & Shaw, 1987; Plotner & Marshall, 2015; U.S. Department of Education, 2017; Wiseman et al., 1988).

Analytic Strategy

Given the limitations of how disability data is reported by institutions and collected by the National Center for Education Statistics (2019), this study employed a random effects probit model with reporting of robust standard errors. Given the binary reporting structure of the data (institutions with 3% or less students with disabilities versus more than 3% of students with disabilities), the data justified the use of a random effects probit model (Gibbons & Hedeker, 1994; Wooldridge, 2009). A random effects probit model is appropriate for longitudinal data predicting a binary outcome including both time varying (e.g., academic support expenses) and time invariant characteristics (e.g., institutional sector) (Wooldridge, 2009). The random effects probit model formula employed in this study can be found below, where:

$$\mathcal{Y}_{it} = \alpha_i + \mathrm{X}_{it}\beta_1 + \mathrm{Z}_i\beta_2 + \tau_t + \varepsilon_{it} \qquad (1)$$

The outcome variable of interest- $\mathcal{Y}_{it}$ represents a Texas postsecondary institution *i*'s first-time undergraduate students with disabilities enrollment in a given year (*t*) from Fall 2013 to Fall 2017. X_{it}represents institution *i*'s time-varying characteristics (such as academic support expenses per FTE). Z_i represents institution *i*'s time invariant characteristics (such as Carnegie Classification). The α_i is institutional-specific intercepts that take into account variation across the institutions. τ_t represents time dummy variables, which control for observed and unobserved events that may affect students with disabilities enrollment over time (such as the law, or technological change). By using 2013

as the reference group, τ_t indicates 2014, 2015, 2016 and 2017 dummy variables. ε_{it} is the error term.

Limitations

The primary limitation of this study—and all disability-related studies in higher education—is the way in which disability data is reported by institutions and collected by the National Center for Education Statistics (2019) and/or the federal government (Getzel & Thoma, 2008; Kimball et al., 2016; Newman et al., 2011). Because specific enrollment numbers and disability types (e.g., autism, deafness) are not made available by the institutions themselves or data reporting entities, quantitative, higher education-focused disability studies must employ a blunt instrument to articulate a highly contextualized, nuanced student population and their institutional environment(s). In addition, this study analyzes the enrollment numbers of students with disabilities in Texas postsecondary institutions and does not gather data through qualitative measures or explore the lived experiences of students with disabilities on postsecondary campuses. Here, another limitation of this study is the absence of an intersectional analysis of students with disabilities that can vary across social identity, including race, ethnicity, gender, sexuality, language identity, religion, veteran status, immigration status, political affiliation, and any other identities.

As a result, this study—and others employing quantitative measures—do not adequately explain how students with a wide range of disabilities may or may not access a diverse, wide range of institutions, each with institution-specific nuances and subtleties in Texas. Decades of research has given students with disabilities an amplified voice in higher education settings, but institutional characteristics must be considered to provide a more holistic, comprehensive understanding of how postsecondary institutions support students with disabilities in Texas.

Results

Descriptive statistics of 2017 institutional-level data can be found in Table 1. Data from 2013, 2014, 2015, and 2016 can be found in the Appendices.

Only 10.7% of Texas higher education institutions enrolled student populations of more than 3% students with disabilities (SWD) (n=42, 10.7% versus n=351, 89.3%). With regard to institutions' Carnegie Classification, location, sector and type, Texas institutions of higher education did not enroll greater than 3% SWD populations. Notably, only 4.5% of less-than-four-year institutions (n=12 out of 268), which offer less-than two-year or two-year degrees, enrolled more than 3% SWD. In addition, institutions that enrolled greater than 3% SWD spent more on average in student support, academic support, instructional support, and average institutional grant aid. The student-faculty ratio in institutions enrolling more than 3% SWD was lower than the ratio at institutions with 3% or less SWD in 2017 (15.7 versus 17.2). We see similar patterns in other years (see Appendix).

Table 1. Texas higher education institutions enrolling more than 3% students with disabilities and institutions enrolling 3% or less than 3% students with disabilities, by Carnegie classification, location, sector, and type in 2017 (n=393)

	Institutions enrolling more than 3% students with disabilities		Institutions enrolling 3% or less than 3% students with disabilities	
	N	% Share	N	% Share
Total	42	10.7%	351	89.3%
Carnegie Classification				
Baccalaureate	7	46.7%	8	53.3%
Master's	13	38.2%	21	61.8%
Doctoral	10	47.6%	11	52.4%
Other*	12	3.7%	311	96.3%
Location				
Urban	29	10.9%	237	89.1%
Suburban	7	10.3%	61	89.7%
Town/rural	6	10.2%	53	89.8%
Sector				
Public	12	11.4%	93	88.6%
Private non-profit	21	30.9%	47	69.1%
Private for-profit	9	4.1%	211	95.9%
Type				
Four-year	30	24.0%	95	76.0%
Less-than-four-year	12	4.5%	256	95.5%
Student Services Expenses+	$3,347		$1,647	
Academic Support Expenses+	$2,185		$1,664	
Instructional Expenses+	$8,923		$5,688	
Average Institutional Grant+	$12,380		$2,739	
Student-to-Faculty Ratio	15.74		17.22	

*Notes: Other includes associate's institutions, special-focus higher education institutions, and Carnegie unclassified institutions.

+These amounts convert to 2018 dollars and they are per full-time student.

A random effects probit model predicting enrollment of students with disabilities in Texas postsecondary institutions (N=394) can be found in Table 2:

Table 2. Random effects probit model predicting whether institutions enroll more than 3% students with disabilities in Texas

Variables	Model 1	Model 2	Model 3
Four-year (Reference=Less-than	-1.455	-1.643	-1.438
four-year)	(0.784)	(0.872)	(1.037)
Carnegie (reference = Bachelor's)			
Master's	-0.106	-0.215	-0.442
	(0.773)	(0.763)	(0.765)
Doctoral/Research	0.548	0.339	-0.348
	(0.877)	(0.868)	(0.884)
Other	-3.854***	-4.044***	-3.099*
	(1.037)	(1.047)	(1.125)
Location (reference=Urban)			
Suburban	0.250	0.296	-0.084
	(0.491)	(0.495)	(0.645)
Town/Rural	-0.250	-0.226	-0.313
	(0.528)	(0.525)	(0.529)
Sector (Reference=Public)			
Private non-profit	0.970*	0.975*	0.527
	(0.487)	(0.482)	(0.561)
Private for-profit	-0.189	0.017	-0.369
	(0.565)	(0.553)	(0.717)
Student services expenses (logged)		-0.080	-0.199
		(0.085)	(0.113)
Academic support expenses (logged)		0.029	0.075
		(0.085)	(0.100)
Instructional expenses (logged)		0.433*	1.388***
		(0.212)	(0.390)
Student-faculty ratio			0.005
			(0.042)
Average institutional grant (logged)			0.590*
			(0.264)
Year (reference=2013)			
2014	0.222	0.307	0.389
	(0.216)	(0.224)	(0.253)
2015	0.102	0.195	0.316
	(0.267)	(0.287)	(0.330)
2016	0.274	0.383	0.466
	(0.286)	(0.314)	(0.363)
2017	0.819*	0.951*	0.968*

	(0.262)	(0.294)	(0.337)
Constant	-0.505	-3.831*	-16.877***
	(1.058)	(1.892)	(4.403)
Observations	1,882	1,882	1,257
Number of institutions	394	394	294

Notes: Robust standard errors in parentheses, *** p<0.001, * p<0.01, * p<0.05

Model 1 included all institutional-level time invariant characteristics across the entire population (N=1,882). Results indicate students with disabilities were less likely to enroll in associate's, special focus, or non-Carnegie classified institutions ($p < 0.001$) than bachelor's institutions and are more likely to enroll in non-profit private institutions ($p < 0.05$) than public institutions.

Model 2 included both institutional-level time invariant and varying characteristics across the entire population (N=1,882). While the coefficients of other Carnegie institutions and private non-profit institutions remain significant, results indicate that instructional expenses per student was also associated with greater percentages of enrolled students with disabilities ($p < 0.05$), echoing prior qualitative studies suggesting increased instructional support may benefit students with disabilities (Bursuck et al., 1989). Finally, when controlling for institutional-level time invariant and varying characteristics, longitudinal data suggest a steady increase of enrollment of students with disabilities at postsecondary institutions in Texas.

Model 3 included institutional-level time invariant and varying characteristics, as well as student-faculty ratio and average institutional grant aid reported by 1,257 institutions across the five-year panel data period. The coefficients of instructional expenses and other Carnegie institutions remain significant across all three models, while the coefficient of private non-profit institutions is no longer significant in Model 3. Table 1 indicates the predicted probability of enrolling more than 3% of students with disabilities after holding all other variables at means. The probability of enrolling more than 3% of students with disabilities for other institutions (2.4%) is 23.5 percentage points lower than bachelor's institutions (25.9%). Additionally, as Table 2 indicates, after holding all the other variables at means, a 1% increase in average institutional grants ($p< 0.05$) were associated with 2.6% greater probability of enrolling more than 3% SWD in Texas postsecondary institutions. Similarly, a 1% increase in instructional expenses predicted 6.1 higher probability of enrolling more than 3% of students with disabilities in Texas institutions of higher education. Across Models 1, 2, and 3, longitudinal data also suggest a steady increase of enrollment of students with disabilities in Texas postsecondary institutions, a result echoed by prior research in other educational contexts (Kimball et al., 2016; Yssel et al., 2016).

Discussion and Implications for Research, Practice, and Policy

Building upon prior research, this study makes several contributions to the literature focused on students with disabilities in higher education, specifically in a Texas context. Of statistically significant findings, data in this study demonstrate that less research-intensive Texas postsecondary institutions (e.g., community colleges, trade schools, non-Carnegie classified institutions) have enrolled a greater percentage of students with disabilities than peer institutions. Given this finding, researchers and policymakers in Texas should be asking why students with disabilities are not enrolling in research-intensive postsecondary institutions in Texas, possibly producing a stratifying effect where students with disabilities are not being exposed to and have not experienced research-focused instruction and

other educational opportunities. As a result, these students may be excluded from four-year bachelor's degrees in research-intensive areas—such as science, technology, engineering, and mathematics (STEM) fields—limiting their ability to earn a high-paying job in these fields once they graduate. Texas postsecondary policymakers should address these access gaps and explore whether students with disabilities are being excluded from research experiences at the postsecondary level, possibly affecting their postsecondary experiences and outcomes.

Data also suggested that private non-profit postsecondary institutions in Texas have a greater percentage of students with disabilities than private for-profit or public institutions. No prior research has posited that private institutions have been more welcoming or supportive of students with disabilities, yet Cawthon et al.'s (2008) study did find that Texas postsecondary institutions did vary in terms of their reported accommodations for deaf students. Given these findings, the combative environment surrounding special education in Texas (DeMatthews & Knight, 2019a, 2019b; B. Hawkins, 2019; Murphy, 2019; Swaby, 2019; Zelinski, 2019) may be positioning public and private for-profit postsecondary institutions as less trustworthy or less supportive of students with disabilities. In the 2017 and 2018 school years, Texas legislation was found to have illegally cut funding to special education at Texas' K-12 public schools (American Speech-Language-Hearing Association, 2019; DeMatthews & Knight, 2019a, 2019b; Swaby, 2019), possibly producing a sense of distrust between students with disabilities and public institutions. In this regard, special education researchers in Texas should explore how students with disabilities are supported in K-12 public schools compared to private schools and engage with these students to learn whether their K-12 experiences have produced negative impressions of public and private for-profit institutions.

In terms of institutional decision making pertinent to student access and equity, data also reveal institutions spending more on instructional expenses and awarding more institutional grant aid positively predicted enrollment of students with disabilities from 2013 to 2017. However, these findings are limited in that institutional expenses are not specifically outlined or itemized by IPEDS, and institutional grant aid reported pertains to both students with and without disabilities. Moreover, both ADA and IDEA do not mandate that postsecondary institutions disclose or itemize how these institutions or students themselves spend institutional grant aid on learning accommodations or support services for SWDs (ADA, 1990; IDEA, 2004). Yet, this finding echoes prior research suggesting SWDs have benefitted from postsecondary institutions who invest in special education services and deliver reasonable accommodations (Haber et al., 2016; Kimball et al., 2016; Madaus, 2011; Plotner & Marshall, 2015; Wiseman et al., 1988).

As a result, although it is difficult to say with certainty that institutional expenses and grant aid drive enrollment of postsecondary students with disabilities in Texas, future research should explore how postsecondary institutions—specifically private non-profit institutions—spend institutional expenses for students with disabilities. As certain learning accommodations for students with disabilities can be cost prohibitive (Getzel & Thoma, 2008; Kimball et al., 2016; Paul, 2000), researchers and policymakers in Texas should explore how postsecondary institutions spend instruction and grant aid and whether a student's knowledge of institutional spending or awarding of grant aid influences where a student with a disability applies or how they view prospective postsecondary institutions.

Additionally, researchers should probe what students with disabilities are specifically receiving from an institutional grant or increased instructional services, shedding light on the provision of assistive technologies, learning accommodations, or tuition assistance by postsecondary institutions in Texas. Cawthon et al.'s (2008) study uncovered how postsecondary institutions in Texas were publishing

their accommodations to deaf students on institutional websites, finding that many institutions did not publish any information about the types of accommodations the institutions could provide. However, without some type of federally or state mandated reporting mechanism, it is difficult to discern how institutions support SWDs through spending on instructional services if these services are not detailed.

Data from 2013 to 2017 also suggest that there has been a steady increase of enrollment of SWD in Texas postsecondary institutions, a positive sign of the changing educational landscape in Texas. As the enrollment of postsecondary students with disabilities increases, there is an urgency to improve their overall educational experience. One challenge that several studies have noted is that these students have difficulty in seeking accommodations and supports at the postsecondary level. In most cases, previous studies highlighted that faculty instructors may need more training to accommodate students with disabilities (e.g., Baker et al., 2012; Lombardi et al., 2013), thus increasing the quality of instruction students with disabilities may receive. Considering this, it seems as though having adequately trained instructors may play a significant role in whether or not a student with a disability seeks to enroll in a particular postsecondary institution in Texas, echoing prior research suggesting that faculty support of SWDs is crucial to the success of SWDs on college campuses (Plotner & Marshall, 2015; Zhang et al., 2010).

However, data suggests gains in postsecondary enrollment for SWDs have been modest and were only found to be statistically significant in 2017. This finding somewhat contradicts nation-wide data suggesting that the postsecondary SWD population grew at a steady rate in years prior to 2017 (Adams & Proctor, 2010; Newman et al., 2011; Yssel et al., 2016). It is important to mention that these aforementioned studies did not capture institutional characteristics to predict increased SWD enrollment to a statistically significant level. However, the contentious environment of special education in Texas (DeMatthews & Knight, 2019a, 2019b; Harris, 2019; B. Hawkins, 2019; Murphy, 2019; Swaby, 2019) may have contributed to the slow growth in SWD enrollment in postsecondary education. To build on findings in this study, Texas' educational researchers and policymakers must explore how private non-profit institutions and non-research-intensive institutions have been better able to drive enrollment of SWDs than peers. Policymakers must also ask why, and more specifically, why public institutions are not enrolling comparable shares of these students.

Regarding this study's findings without statistical significance, data suggests that the geographic location of Texas postsecondary institutions has had no effect on the percentage of SWDs enrolled in the institutions. Here, despite the considerable geographic diversity and the population distribution in Texas (Texas Higher Education Coordinating Board, 2019), the physical location of postsecondary institutions in Texas may not be as important as an institution's sector (e.g., public or private), their mission, vision and student services, or their commitment to awarding institutional grant aid. Subsequently, this finding reinforces the notion that researchers, practitioners, and policymakers should investigate how private non-profit institutions and less research-intensive institutions have enrolled greater percentages of students with disabilities, despite the potential geographic diversity of these institutions. Moreover, instructional expenses and grant aid seem more predictive of enrolling SWDs than physical location, another reinforcement to guide deeper research into institutional sector, research intensity, and institutional expenses on instruction and grant aid.

Moving forward, policymakers and practitioners should investigate whether to invest further in instructional expenses or institutional grants for SWDs. Additionally, to contend with the negative rhetoric and environment surrounding special education in Texas (DeMatthews & Knight, 2019a,

2019b; Harris, 2019; Swaby, 2019; Zelinsky, 2019), more research must be conducted to learn why private non-profit and non-research-intensive institutions have seemingly overcome considerable odds in enrolling greater numbers of SWDS, despite a lack of legislative and financial support at the state level. Ultimately, research and policy advocacy could help improve educational conditions for students with disabilities in Texas, forever improving the lives of these students, both on and off the college campus.

Conclusion

This study has provided a detailed, longitudinal snapshot of the postsecondary institutions in Texas that have enrolled students with disabilities within the five-year period of 2013 to 2017. As the historical context of special education has been controversial (Getzel & Thoma, 2008; Hurst & Smerdon, 2000; Kimball et al., 2016; Madaus, 2011; Paul, 2000; Wiseman et al., 1988; Yssel et al., 2016), it was of great interest to gain a deeper insight specifically into the institutional characteristics that predict the enrollment of SWDs to learn how postsecondary institutions can increase access for SWDs.

The findings of this study suggest that over the five-year period of 2013 to 2017, the postsecondary institutions in Texas that focus less on research, and are considered to be private non-profit institutions, have a higher percentage of enrollment of SWDs. The data in this study also suggested that instructional expenses and institutional grant aid predicted the enrollment of SWDs in postsecondary institutions in Texas. Moreover, the findings in this study have paved the way for more in-depth analysis into answering the big questions, such as why students with disabilities are less likely to enroll in research-intensive intensive postsecondary institutions, as well as the types of supports these students are provided with in either their K-12 public school or private school experiences. Further, more information on the accommodations are provided to SWDs with regards to institutional grants and increased instructional services in postsecondary institutions in Texas.

Although this quantitative study has contributed to the literature on the enrollment of SWDs in postsecondary institutions in Texas, little explanation is offered regarding the accessibility of the Texas institutions students with varying disabilities. In spite of this, it is relevant and necessary to have an understanding of the institutional characteristics to learn how SWDs are supported by postsecondary institutions. Considering this, there is a continuous need for researchers and policymakers to advocate for SWDs and urge postsecondary institutions in Texas to provide data on SWDs for research and policy advocacy purposes.

To support SWDs, disability studies researchers and policymakers in Texas must continue to advocate for the SWD population and encourage Texas postsecondary institutions to provide anonymous yet detailed data on SWDs. Such an effort would allow disability allies, support groups, and interested individuals the ability to advocate for more inclusive, supportive policies to facilitate the access to higher education in Texas for SWDs. In doing so, this advocacy for more holistic and inclusive policies can thereby increase the enrollment of SWDs in all postsecondary institutions in Texas.

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Appendix

Texas institutions enrolling more than 3% students with disabilities and institutions enrolling 3% or less than 3% students with disabilities, by Carnegie classification, location, sector, and type in 2016 (n=387)

	Institutions enrolling more than 3% students with disabilities		Institutions enrolling 3% or less than 3% students with disabilities	
	N	% Share	N	% Share
Total	30	7.8%	357	92.2%
Carnegie Classification				
Baccalaureate	5	33.3%	10	66.7%
Master's	11	32.4%	23	67.6%
Doctoral/Research	7	33.3%	14	66.7%
Other*	7	2.2%	310	97.8%
Location				
Urban	20	7.5%	246	92.5%
Suburban	4	6.3%	59	93.7%
Town/rural	6	10.3%	52	89.7%
Sector				
Public	11	10.5%	94	89.5%
Private non-profit	16	23.5%	52	76.5%
Private for-profit	3	1.4%	211	98.6%
Type				
Four-year	23	18.7%	100	81.3%
Less-than-four-year	7	2.7%	257	97.3%
Student Services Expenses	$3,342	-	$1,627	-
Academic Support Expenses	$2,458	-	$1,684	-
Instructional Expenses	$9,618	-	$5,665	-
Average Institutional Grant	$11,818	-	$2,850	-
Student-to-Faculty Ratio	15.2	-	17.1	-

*Notes: Other includes associate's institutions, special-focus higher education institutions, and Carnegie unclassified institutions.

Texas institutions enrolling more than 3% students with disabilities and institutions enrolling 3% or less than 3% students with disabilities, by Carnegie classification, location, sector, and type in 2015 (n=383)

	Institutions enrolling more than 3% students with disabilities		Institutions enrolling 3% or less than 3% students with disabilities	
	N	% Share	N	% Share
Total	27	7.0%	356	93.0%
Carnegie Classification				
Baccalaureate	4	26.7%	11	73.3%
Master's	11	32.4%	23	67.6%
Doctoral/Research	6	28.6%	15	71.4%
Other*	6	1.9%	307	98.1%
Location				
Urban	17	6.5%	245	93.5%
Suburban	4	6.5%	58	93.5%
Town/rural	6	10.2%	53	89.8%
Sector				
Public	9	8.6%	96	91.4%
Private non-profit	15	22.4%	52	77.6%
Private for-profit	3	1.4%	208	98.6%
Type				
Four-year	21	17.1%	102	82.9%
Less-than-four-year	6	2.3%	254	97.7%
Student Services Expenses	$3,595	-	$1,554	-
Academic Support Expenses	$2,498	-	$1,561	-
Instructional Expenses	$10,023	-	$6,879	-
Average Institutional Grant	$11,558	-	$2,835	-
Student-to-Faculty Ratio	16.3	-	18.0	-

*Notes: Other includes associate's institutions, special-focus higher education institutions, and Carnegie unclassified institutions.

Texas institutions enrolling more than 3% students with disabilities and institutions enrolling 3% or less than 3% students with disabilities, by Carnegie classification, location, sector, and type in 2014 (n=376)

	Institutions enrolling more than 3% students with disabilities		Institutions enrolling 3% or less than 3% students with disabilities	
	N	% Share	N	% Share
Total	29	7.9%	337	92.1%
Carnegie Classification				
Baccalaureate	5	33.3%	10	66.7%
Master's	9	26.5%	25	73.5%
Doctoral/Research	7	33.3%	14	66.7%
Other*	8	2.7%	288	97.3%
Location				
Urban	22	8.7%	230	91.3%
Suburban	3	5.2%	55	94.8%
Town/rural	4	7.1%	52	92.9%
Sector				
Public	7	6.8%	96	93.2%
Private non-profit	17	27.9%	44	72.1%
Private for-profit	5	2.5%	197	97.5%
Type				
Four-year	21	17.8%	97	82.2%
Less-than-four-year	8	3.2%	240	96.8%
Student Services Expenses	$3,562	-	$1,422	-
Academic Support Expenses	$2,876	-	$1,584	-
Instructional Expenses	$9,865	-	$6,785	-
Average Institutional Grant	$11,132	-	$2,920	-
Student-to-Faculty Ratio	15.4	-	17.7	-

*Notes: Other includes associate's institutions, special-focus higher education institutions, and Carnegie unclassified institutions.

Texas Institutions enrolling more than 3% students with disabilities and institutions enrolling 3% or less than 3% students with disabilities, by Carnegie classification, location, sector, and type in 2013 (n=353)

	Institutions enrolling more than 3% students with disabilities		Institutions enrolling 3% or less than 3% students with disabilities	
	N	% Share	N	% Share
Total	25	7.1%	328	92.9%
Carnegie Classification				
Baccalaureate	5	33.3%	10	66.7%
Master's	7	20.6%	27	79.4%
Doctoral/Research	5	23.8%	16	76.2%
Other*	8	2.8%	275	97.2%
Location				
Urban	18	7.4%	224	92.6%
Suburban	4	7.3%	51	92.7%
Town/rural	3	5.4%	53	94.6%
Sector				
Public	6	5.9%	96	94.1%
Private non-profit	14	23.7%	45	76.3%
Private for-profit	5	2.6%	187	97.4%
Type				
Four-year	18	15.8%	96	84.2%
Less-than-four-year	7	2.9%	232	97.1%
Student Services Expenses	$2,996	-	$712	-
Academic Support Expenses	$2,222	-	$874	-
Instructional Expenses	$8,680	-	$6,523	-
Average Institutional Grant	$10,393	-	$2,820	-
Student-to-Faculty Ratio	16.2	-	18.5	-

*Notes: Other includes associate's institutions, special-focus higher education institutions, and Carnegie unclassified institutions.